

APPLICANT(S): Sergey POPOV  
SERIAL NO.: n/a (Nat. Phase of PCT/IL2004/000554)  
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## **AMENDMENTS TO THE CLAIMS**

Kindly amend the claims as follows:

1 - 45 (cancelled)

46. (new) A safety trocar obturator adapted to removable inserting into a cannula and subsequent forming a passageway in a patient's body cavity wall, including:

a shaft having:

a distal end and

a proximal end;

an obturator handle disposed on said shaft proximal end;

a penetrating head disposed on said shaft distal end and including:

a dilating sloping surface protruding distally beyond the distal end of said cannula;

a penetrating subassembly adapted for mounting on said penetrating head and including:

an apex knife with sharpened cutting edge;

a safety means for said apex knife protection including:

an apex knife shield having:

a retracted position, in which said apex knife is open,

and an extended position, in which said apex knife is protected;

a biasing spring urging said shield from said retracted position to said extended position;

said shield and said apex knife cutting edge protruding distally beyond said dilating sloping surface.

47. (new) The trocar obturator of claim 46, has a quickly acting connecting means allowing quick attachment / detachment of said penetrating subassembly to / from said shaft distal end.

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48. (new) The trocar obturator of claim 47, wherein said apex knife shield is tubular and designed to surround said apex knife.

49. (new) The trocar obturator of claim 47, wherein said apex knife is flat, said apex knife shield is flat and adjoins to said apex knife from the side of said sharpened cutting edge.

50. (new) The trocar obturator of claim 47, wherein said penetrating head has a penetrating head base presenting a constituent of said quickly acting connecting means and inseparably connected to said shaft, and said penetrating subassembly is adapted for mounting on said shaft through said penetrating head base, therewith said penetrating head base and said penetrating subassembly have the geometry of contacting portions, which facilitates their matching and quick assembling.

51. (new) The trocar obturator of claim 50, wherein said quickly acting connecting means includes a penetrating head cover, and said penetrating subassembly is mounted between said head cover and said penetrating head base.

52. (new) The trocar obturator of claim 51, wherein said penetrating head cover is pivotally mounted on said penetrating head base.

53. (new) The trocar obturator of claim 47, wherein said penetrating head is connected to said shaft by said quickly acting connecting means allowing quick attachment / detachment of said penetrating subassembly to / from said shaft along with said penetrating head as a whole.

54. (new) The trocar obturator of claim 53, wherein said quickly acting connecting means is made as a collet connector.

55. (new) The trocar obturator of claim 47, wherein there is at least one lateral knife protruding from said dilating sloping surface.

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56. (new) The trocar obturator of claim 46, wherein said apex knife shield and biasing spring are made as a single detail.

57. (new) The trocar obturator of claim 56, wherein said apex knife, apex knife shield and biasing spring are made as a single detail.

58. (new) The trocar obturator of claim 46, wherein said apex knife is pointed to reduce force applied on said body cavity wall during its penetration.

59. (new) The trocar obturator of claim 46, wherein said biasing spring is characterized by an axial force permitting to return said apex knife shield from said retracted position into said extended position after patient's skin penetration, but before a peritoneum penetration, therewith during moving through the patient's soft tissue including the peritoneum said apex knife shield serves as a blunt penetrating tip.

60. (new) The trocar obturator of claims 59, wherein there is a locking means, which locks said apex knife shield after returning said apex knife shield into said extended position thereby enhancing its operation reliability as a blunt penetrating tip.

61. (new) The trocar obturator of claims 59, wherein said apex knife shield has a pointed distal edge to ease its passing through a cavity wall tissues, but said pointed distal edge is formed with surfaces disposed at obtuse angle to one another to provide its safety for patient's internal organs.

62. (new) The trocar obturator of claim 46, including:

a locking means for locking said apex knife shield in its extended position, having:

a lock position,

an unlock position;

a locking mechanism having a distal abutment surface and proximal abutment surface disposed in the limits of said penetrating head;

said distal abutment surface movable along with said apex knife shield,

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said proximal abutment surface immovable in axial direction relative to said obturator shaft, therewith said lock position of locking means is provided when said distal abutment surface is butted up against said proximal abutment surface.

63. (new) The trocar obturator of claim 62, wherein said abutment surfaces have

a mediate contact with one another by means of a spacer placed between them and movable between a distal position wherein said apex knife shield is unlocked in said extended position and an extreme proximal position wherein said apex knife shield is locked in said extended position,

and said spacer is made as a locking beam having:

a beam distal end and

a beam proximal end, therewith in said locking position said beam distal end interacts with said distal abutment surface and through it with said apex knife shield and said beam proximal end interacts with said proximal abutment surface locking said apex knife shield in said extended position.

64. (new) The trocar obturator of claim 63, wherein said locking means includes a control means to unlock said apex knife shield and to return said locking means from said lock position to said unlock position, and said apex knife shield unlocking is implemented by disengagement of said locking beam from said abutment surfaces.

65. (new) The trocar obturator of claim 64, wherein said control means is disposed in the limits of said penetrating head and made as a knob located on a proximal end of said locking beam and accessible for user after withdrawing said trocar obturator from said cannula.

66. (new) The trocar obturator of claim 65, wherein said penetrating subassembly includes said locking mechanism and there is a quickly acting connecting means allowing quick attachment / detachment of said penetrating subassembly to / from said penetrating head.

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67. (new) The trocar obturator of claim 64, wherein said control means is made as a remote means including:

- a remote knob disposed on said obturator handle,
- a control spring and
- a transmitting bar having:
  - a proximal end connected to said remote knob and
  - a distal end adapted to the contact interaction with said locking beam proximal end.

68. (new) A method of forming a passageway in a patient's body cavity wall by a trocar, including a safety trocar obturator removably inserted into a cannula and having:

- a penetrating head having:
    - a sloping surface protruding distally beyond a distal end of said cannula;
    - an apex knife with sharpened cutting edge;
    - a safety means for said apex knife protection including:
      - an apex knife shield having:
        - a retracted position, in which said apex knife is open,
        - and an extended position, in which said apex knife is protected;
      - a biasing spring urging said shield from said retracted position to said extended position;
- said method comprises:

pressing onto patient's skin by said trocar directed substantially perpendicularly to patient's skin leading to displacing said apex knife shield in said retracted position and baring said apex knife,

penetrating the patient's skin with said apex knife,

penetrating the remaining patient's soft tissues layers including a peritoneum by said penetrating head, which is blunt due to that immediately after skin penetrating said apex knife shield is returned in said extended position by said biasing spring whose force exceeds the resistance force of the patient's soft tissue, and as a result, during moving through the patient's soft tissue said apex knife shield operates as a penetrating blunt tip.